Center for Scientific Review
National Institutes of Health

Scientific Areas of Integrated Review Groups (IRGs)

For a listing of the Scientific Review Administrator and membership roster for each study section, click on the study section roster next to the study section name under an IRG listed below or go to the study section index (study sections listed alphabetically) and click on the specified roster next to the name of the study section.

Last updated on the 27th May, 2004

Referral & Review

Hematology IRG [HEME]

The Hematology [HEME] IRG will consider research applications ranging from basic research through clinical studies focused on hematopoiesis, blood cells and their diseases and studies of normal and pathologic hemostasis and thrombosis. Specific areas include hemoglobinopathies, thalassemias, iron and heme metabolism, red cell and granuloctye/monocyte/leukocyte biology, transfusion medicine, disorders and parasite infections that involve blood elements, basic and applied aspects of normal and abnormal hematopoiesis, leukemias and leukomogenesis, hematopoietic stem cell transplantation, hematopoietic cell gene therapy, mechanisms of hemostasis and thrombosis, megakaryocytopoiesis involving platelet production and gene therapy of disease involving blood coagulation factors (hemophilia). Evaluation of single site clinical studies of hematologic disorders will be considered in a separate special emphasis panel as needed.

The following Study Sections are included within the HEME IRG:

Erythrocyte and Leukocyte Biology Study Section [ELB]
Hematopoiesis Study Section [HP]
Hemostasis and Thrombosis Study Section [HT]
Clinical Hematology Special Emphasis Panel
Hematology Small Business Activities [SBIR/STTR] Special Emphasis Panel [HEME Small Business SEP]

The study sections that compose the Hematology IRG are the first to be proposed for re-organization and implementation. As a result, some of the Teams that will develop recommendations for other IRGs that may share interests in areas of research with the HEME IRG have not yet completed their deliberations. Therefore, the proposed “shared interest” guidelines for each of the study sections listed below are tentative, pending further input from the remaining study section design Teams, the community, and the CSR Advisory Committee to the Director, CSR.

Erythrocyte and Leukocyte Biology Study Section [ELB]

[ELB Roster]

The Erythrocyte and Leukocyte Biology [ELB] study section reviews applications involving both basic and applied aspects of the blood system, with a focus on hemoglobinopathies, thalassemias; iron and heme metabolism; erythrocyte and granulocyte/monocyte biology, transfusion medicine, and disorders and parasitic infections that involve the formed blood elements.

Specific areas covered by ELB:

- Hemoglobin structure, synthesis and biochemistry; blood substitutes; abnormal hemoglobins; developmental globin gene regulation; gene expression during erythroid differentiation; sickle cell anemia; and gene therapy for globin disorders
- Iron and heme metabolism; iron overload states and strategies for the therapeutic intervention; and sideroblastic anemias, acquired and inherited
- Immunohematology and transfusion: immunohematologic disorders; autoimmune hemolytic anemia, thrombocytopenia and neutropenia; RBC antigens; blood groups, blood banking, and transfusion medicine.
- Molecular cell biology, biochemistry, and structure of the formed blood elements: myeloid and erythroid cell membrane proteins and receptors; the interaction of myeloid and erythroid cells with the vascular wall; the granulocyte/monocyte and red cell cytoskeleton; subcellular organelles.
- Normal and pathological myelocyte and erythrocyte function; signal transduction involving formed blood elements apoptosis.
- Inherited or acquired hemolytic anemias, including disorders involving the erythrocyte membrane or membrane skeleton and erythroblast biology.
- Toxicology as it impacts the formed blood elements.

ELB has the following shared interests within the HEME IRG:

- **Hematopoiesis [HP] study section:** The biology of mature myeloid and erythroid cells should be reviewed in ELB. Erythropoiesis and myelopoiesis are appropriate for HP.

- **Hemostasis and Thrombosis [HT] study section:** Signal transduction studies in formed blood elements are appropriately reviewed in ELB with the exception of signal transduction in platelets, which is appropriate for HT. Membrane cytoskeleton protein studies are reviewed in ELB if the primary focus is on the cytoskeleton and not the cell type, e.g., spectrin in platelets.

ELB has the following shared interests outside the HEME IRG:

- **With the Biological Chemistry and Macromolecular Biophysics [BCMB] IRG, and the Cell Biology [CB] IRG**: The BCMB and CB IRGs will not be implemented until later in 2004. In the interim, applicants may wish to review the guidelines for the BCS, BPC and CDF IRGs. Studies examining the structure and function of membranes or

proteins that address questions relative to the physiology or pathology of the blood or elements, are appropriate for ELB. Studies designed to address only general principles of protein or membrane structure or cell function, and that use blood elements primarily as a convenient source of material, may be considered under the auspices of the BCMB and CB IRGs.

- **With the Bioengineering Sciences and Technologies [BST] IRG:** Where the response of blood elements to medical devices and systems are primary foci, assignment to ELB might be appropriate. Where the issues are development of new materials or biocompatibility, assignment to the BST IRG may be considered.

- **With the Immunology [IMM] IRG:** There is a shared interest in immunohematological disorders. Assignment to ELB is appropriate when the focus is on the biology or disorders of erythroid and myeloid cells. The IMM IRG may be considered for studies on myeloid cells, particularly when the focus is on their role in immunity. Studies on the biology of mature lymphocytes are appropriate for the IMM IRG.

- **With the Infectious Diseases and Microbiology [IDM] IRG:** There is a shared interest between the IDM IRG and ELB for parasitic infections of blood elements such as malaria. If the primary interest is in the blood cells (e.g., macrophages, cytoskeletal proteins), then assignment to ELB may be appropriate. If the main objective is to study the parasite, and characteristics of the infection that relate to the parasite, then assignment to the IDM IRG may be appropriate.

- **With the Cardiovascular Sciences [CVS] IRG:** The interaction of blood elements with the vascular wall is complex and represents an area of shared interest. Where the primary focus of an application is on the biology of myeloid and erythroid cells when they interact with the vascular wall assignment to ELB may be appropriate. Where the primary focus of an application is on the properties of cells and extracellular matrix of the vascular wall, including extravasation, assignment may be to the CVS IRG.

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Hematopoiesis Study Section [HP]

[HP Roster]

The Hematopoiesis [HP] Study Section reviews applications involving both basic and applied aspects of normal and abnormal hematopoiesis, including stem cell biology, hematopoietic growth factors and their receptors, leukemias and leukemogenesis, bone marrow failure syndromes, myeloproliferative syndromes, stem cell transplantation, and hematopoietic cell gene therapy.

Specific areas covered by HP:

- Stem cell biology, hematopoietic growth factors and their receptors.

- Erythropoiesis, myelopoiesis and thrombopoiesis.
- Leukemias and leukemogenesis, myelodysplasias, myeloproliferative syndromes and bone marrow failure syndromes, including PNH and Fanconi amenia.
- Experimental bone marrow and blood stem cell transplantation. Graft versus host disease and graft rejection.
- Hematopoietic cell gene therapy.

HP has the following shared interests within the HEME IRG:

- **With the Erythrocyte and Leukocyte Biology [ELB] study section:** The biology of mature myeloid and erythroid cells should be reviewed in ELB. Erythropoiesis and myelopoiesis are appropriate for HP.

- **The Hemostasis and Thrombosis [HT] study section** should review megakaryocytopoiesis and megakaryocyte differentiation applications. HT should review applications concerned mainly with the final stages of platelet formation and platelet function.

HP has the following shared interests outside the HEME IRG:

- **With the Biology of Development and Aging [BDA] IRG**: Shared interest exists for studies of apoptosis and cell cycle in blood elements. Assignment to HP is appropriate when the primary focus is on hematopoiesis, especially when related to hematologic disorders. The BDA IRG may be appropriate for studies that use blood elements as a source material to study general developmental processes.

- **With the Bioengineering Sciences and Technologies [BST] IRG:** Applications focused on specific hematological stem cell or gene transfer therapies are relevant to HP. Grant applications focused on developing stem cell and gene transfer technologies to introduce genes and drugs in a general context are relevant to the BST IRG.

- **With the Immunology [IMM] IRG:** Normal hematopoiesis is an area of shared interest. All aspects of hematopoiesis are appropriate for HP. The IMM IRG may also be considered when the focus is on myelopoiesis or lymphopoiesis.

- **With the Immunology [IMM] and Oncological Sciences [ONC] IRGs:** Bone marrow transplantation is an area of shared interest with the IMM and ONC IRGs. Bone marrow transplantation studies, particularly those using stem cells or immune deficient animals, may be appropriate for HP. When the primary focus of the study is on immunological aspects of graft versus host disease then the assignment could be to the IMM IRG. Studies on bone marrow transplantation as they relate to leukemia or other tumors are appropriate for the ONC IRG.

- **With the Oncological Sciences [ONC] IRG:** The pathogenesis of the leukemias and lymphomas is an area of shared interest. HP is the appropriate review group for studies of the molecular pathogenesis of hematologic malignancies. Studies of leukemia and lymphoma diagnosis, prognosis, treatment, as well as treatment outcomes and complications are

best reviewed in the ONC IRG. Translational studies and early phase clinical trials of hematopoietic stem cell transplantation specifically for the treatment of malignant diseases, or the use of these approaches to modulate tumor immunity, should also be reviewed by the ONC IRG.

- **Stem Cells:** Shared interest may exist with many IRGs concerning common stem cell precursors. Assignment of applications on the transdifferentiation of cells between the blood and other cell types should be resolved in the direction of the final phenotype. For example, if the final phenotype of the differentiated tissue is neural or vascular smooth muscle cells it may be assigned to the appropriate organ system IRG. If the final phenotype of the differentiated tissue is a blood cell then assignment to HP may be appropriate. Studies on undifferentiated stem cells may be assigned to the BDA IRG. The BDA IRG could also be considered for clustering the review of studies on human embryonic stem cells.

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Hemostasis and Thrombosis Study Section [HT]

[HT Roster]

The Hemostasis and Thrombosis [HT] Study Section reviews applications involving basic and applied aspects of the blood and vascular elements associated with hemostasis, thrombosis, and interactions with vasculature. Studies using cellular, biochemical, biophysical, immunological, genetic, pharmacological and molecular biological approaches to define normal and pathological processes are reviewed.

Specific areas covered by HT:

- Mechanisms of hemostasis: blood coagulation, structure/function of coagulation proteins, congenital and acquired bleeding disorders; hemophilia gene therapy; clinical management of bleeding disorders.
- Mechanisms of thrombolysis/fibrinolysis: fibrin structure; regulatory mediators including activators and inhibitors.
- Platelet biology: adhesion, aggregation, secretion; signal transduction mechanisms; platelet turnover; megakaryocyte biology; cytoadhesin/integrin receptor biology; platelet endothelial cell interactions, platelet disorders.
- Thrombosis: venous and arterial; rheology; inflammatory cytokines; mechanisms of atherogenesis; tissue factor expression; polymorphisms, congenital risk factors, diagnosis and pharmacologic intervention.
- Vascular biology: vessel wall interactions with the formed blood elements, including pro and anticoagulant functions, pro and anti platelet functions, and pro and antiadhesion functions; expression of tissue factor, pro and antifibrinolytic functions, matrix proteases, and soluble angiogenic factors from blood.

HT has the following shared interests within the HEME IRG:

- **With the Erythrocyte and Leukocyte Biology [ELB] study section:**

Signal transduction studies in formed blood elements are appropriately reviewed in ELB with the exception of signal transduction in platelets, which is appropriate for HT. Membrane cytoskeleton protein studies are reviewed in ELB if the primary focus is on the cytoskeleton and not the cell type, e.g., spectrin in platelets.

- **The Hematopoiesis [HP] study section** should review megakaryocytopoiesis and megakaryocyte differentiation applications. HT should review applications concerned mainly with the final stages of platelet formation and platelet function.

HT has the following shared interests outside the HEME IRG:

- **With the Biological Chemistry and Macromolecular Biophysics [BCMB] and the Cell Biology [CB] IRGs:** The BCMB and CB IRG will not be implemented until later in 2004. In the interim, applicants may wish to review the guidelines for the BCS, BPC and CDF IRGs. Studies examining the structure and function of membranes or proteins that address questions relative to the physiology or pathology of platelets or thrombosis, are appropriately reviewed in HT. Studies designed to address only general principles of protein or membrane structure or cell function, and that use blood elements primarily as a convenient source of material, should be considered under the auspices of the BCMB and CB IRGs.

- **With the Bioengineering Sciences and Technologies [BST] and Cardiovascular Sciences [CVS] IRGs:** Proposals on bioengineering related specifically to devices for cardiovascular disease (stents, pacemakers, etc.) are appropriate for the CVS IRG. Those involving more general aspects of bioengineering could be assigned to the BST IRG. Studies on the use of stents in cardiovascular injury and repair are appropriate for the CVS IRG. Stent-induced thrombosis is appropriate for HT.

- **With the Oncological Sciences [ONC] and Cardiovascular Sciences [CVS] IRGs:** Blood vessel proliferation is a domain shared with the ONC and CVS IRGs. HT may be appropriate when the primary focus is on soluble angiogenic factors from blood in regulating endothelial cell growth and function. Applications that focus on the biology, diagnosis and treatment of tumor angiogenesis may be assigned to the ONC IRG. When the primary focus is on the embryonic development of the vasculature, or the role of the vessel wall elements in non-tumor associated angiogenesis, assignment to the CVS IRG may be considered.

- **With the Cardiovascular Sciences [CVS] IRG:** The interaction of blood elements and factors with the vasculature is an area of shared interest with the CVS IRG. The purview of the HT includes vessel wall interactions with blood elements such as platelets when the primary focus is on the biology of the formed blood elements or the process of thrombosis, including pro and anticoagulant functions, pro and anti platelet functions, and pro and anti-adhesion functions, expression of tissue factor, and pro and anti-fibrinolytic functions. Atherogenesis is also an area of shared interest. When the focus is on platelet cell biology and thrombosis, assignment to the HEME IRG may be considered. The CVS IRG may be considered for studies that focus on vascular homeostasis, endothelial

biology and barrier function, including extravasation of leukocytes and lymphocytes, extracellular matrix biology, smooth muscle cell biology, regulation of vascular tone, lipoprotein biology, atherogenesis, and all areas subtended by these. Studies on the response of smooth muscle and endothelial cells to shear stress may also be appropriate for the CVS IRG. The effects of shear stress and hemodynamics on blood elements are appropriate for the HT study section.

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Clinical Hematology Special Emphasis Panel

The Clinical Hematology Special Emphasis Panel [SEP] reviews applications proposing single-site clinical studies related to inherited blood diseases (including gene therapy or genetics), or related to red blood cell/monocyte/leukocyte biology, hematopoiesis, hemostasis and thrombosis, or inflammation. Multi-center clinical trials are not appropriate for this panel.

The Clinical Hematology SEP has the following shared interests within the HEME IRG:

- **With the Erythrocyte and Leukocyte Biology [ELB], Hematopoiesis [HP], and Hemostasis and Thrombosis [HT] study sections:** Clinical hematology applications may be assigned to other study sections within the IRG to cluster like kinds of applications or provide alternative review venues to the extent that appropriate expertise exists on those panels.

The Clinical Hematology SEP has the following shared interests outside the HEME IRG:

- **With the Cardiovascular Sciences [CVS] IRG:** The interaction of blood elements with the vascular wall is complex and represents an area of shared interest. (1) Where the primary focus of an application is on clinical studies of the interaction of blood elements with the vascular wall, assignment to the Clinical Hematology SEP may be appropriate. Where the primary focus of an application is on the properties of cells and extracellular matrix of the vascular wall, including extravasation, assignment may be to the CVS IRG. (2) The Clinical Hematology SEP may be appropriate when the primary focus is on clinical studies of soluble angiogenic factors from blood in regulating endothelial cell growth and function. When the primary focus is on the role of the vessel wall elements in non-tumor associated angiogenesis, assignment to the CVS IRG may be considered. (3) Atherogenesis is also an area of shared interest. When the focus is on clinical studies of platelet cell biology and thrombosis, assignment to the Clinical Hematology SEP may be considered. The CVS IRG may be considered for studies that focus on vascular homeostasis, endothelial biology and barrier function. (4) Studies on the response of smooth muscle and endothelial cells to shear stress may also be appropriate for the CVS IRG. Clinical studies on the effects of shear stress and hemodynamics on blood elements are appropriate for the HT study section.

- **With the Oncological Sciences [ONC] IRG:** The pathogenesis of the leukemias and lymphomas is an area of shared interest. The Clinical

Hematology SEP is the appropriate review panel for studies of the molecular pathogenesis of hematologic malignancies. Studies of leukemia and lymphoma diagnosis, prognosis, treatment, as well as treatment outcomes and complications are best reviewed in the ONC IRG. The ONC IRG should also review early phase clinical trials of hematopoietic stem cell transplantation specifically for the treatment of malignant diseases, or the use of these approaches to modulate tumor immunity.

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Hematology Small Business Activities [SBIR/STTR] Special Emphasis Panel [HEME Small Business SEP]

[SBIR/STTR Study Section Rosters]

Specific areas covered by the HEME Small Business SEP:

The Hematology Small Business Activities Special Emphasis Panel [HEME Small Business SEP] will review SBIR and STTR applications ranging from basic research through clinical studies focused on red blood cells and their diseases including sickle cell anemia, storage of whole blood and its components, transfusion medicine, development of blood substitutes, stem cell culture, and stem cell therapy, hematopoiesis, studies of normal and pathologic hemostasis and thrombosis including hemophilia and gene therapy, anticoagulant therapy and development of hematological diagnostic devices and assays.

The HEME Small Business SEP has the following shared interests outside the HEME IRG:

- **With the Biology of Development and Aging [BDA] IRG:** Applications focused on hematopoietic stem cells or gene transfer therapies are relevant to the HEME Small Business SEP. Similarly, applications that focus on stem cells in early developmental would be assigned to the BDA IRG. Applications that use human embryonic stem cells might also be clustered in the BDA IRG, even if studying hematopoietic system specific issues.

- **With the Bioengineering Sciences and Technologies [BST] IRG:** (1) Where the response of blood elements to medical devices and systems are primary foci, assignment to the HEME Small Business SEP might be appropriate. Where the issues are development of new materials or biocompatibility, assignment to the BST IRG may be considered. (2) Applications focused on specific hematological stem cell or gene transfer therapies are relevant to the HEME Small Business SEP. Applications focused on developing stem cell and gene transfer technologies to introduce genes and drugs in a general context are relevant to the BST IRG.

- **With the Risk, Prevention, and Health Behavi or [RPHB] IRG and the Health of the Population [HOP] IRG:** Studies on behavior modification, including health education or training, directed toward the prevention and treatment of hematological diseases, including psychological aspects,

could be assigned to the RPHB IRG or to the HOP IRG, depending upon the level of analysis and the nature of the intervention. Applications focused on hematological diseases, disorders, or functional consequences of behaviors could be assigned to the HEME Small Business SEP. Health education or training directed to the health care provider, not the patient, should also be assigned to the HEME Small Business SEP.

- **With the Cardiovascular Sciences [CVS] IRG:** Shared interest may exist concerning the use of common stem cell precursors. Assignment of applications that involve the transdifferentiation of cells between the blood and endothelial cell types would be resolved in the direction of the final phenotype, i.e., stem cell plasticity. For example, if the final phenotype of the differentiated tissue is a blood cell the application may be assigned to the HEME Small Business SEP. If the final phenotype of the differentiated tissue is a vascular smooth muscle cells then assignment to the CVS IRG may be appropriate.

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